2
2016

European Journal of Biomedical and Life Sciences

EASTWEST
SCIENCE UNITES

ISSN 2310-5690

Austria, Vienna

4. Ohkuma H., Tsurutani H., Suzuki S. Incidence and Significance of Early Aneurismal Rebleeding before Neurosurgical or Neurological Management//Stroke. – 2001. – Vol. 32, № 4.
5. Hunt W. E., Hess R. M. Surgical risk as related to time of intervention in the repair of intracranial aneurysms//Journal of neurosurgery. – 1968. – T. 28. – № 1.
6. Fisher C. M., Kistler J. P., Davis J. M. Relation of cerebral vasospasm to subarachnoid hemorrhage visualized by computerized tomographic scanning//Neurosurgery. – 1980. – T. 6. – № 1.
7. Бывальцев В. А., Белых Е. Г., Степанов И. А. Выбор способа лечения церебральных различных локализация в условиях развития современных эндоваскулярных технологий: метаанализ//Вестник РАМН. – 2016. – 71(1): 31–40. doi: 10.15690/vramn615.
8. Крылов В. В., Природов А. В. Факторы риска хирургического лечения аневризм средней мозговой артерии в остром периоде кровоизлияния//Нейрохирургия. – 2011. – 1: 31–41.
9. Крылов В. В., Природов А. В., Архипов И. В., Гаврилов А. В., Григорьева Е. В., Ганин Г. В., Ятченко А. М. Моделирование гемодинамических изменений в артериях и артериальных аневризмах головного мозга при сосудистом спазме//Нейрохирургия. – 2013. – 4: 16–25.

Kitsak Tetiana,
Bukovinian State Medical University,
Assistant, the Faculty of Dentistry
E-mail: dronykivan@ukr.net

The state of disease incidence of parodontium tissue in the workers of Chernivtsi railway junction of Lviv railway

Abstract: Parodontium diseases being a serious medico-social problem take one of the leading places in the structure of stomatological diseases. Inflammatory and dystrophic-inflammatory diseases such as catarrhal gingivitis and generalized periodontitis are the most spread among them.

Complexity of the causation and pathogenesis of these diseases, their dependence upon many factors, deficiency of primary prevention stipulate high prevalence of both gingivitis and generalized peridontitis. Prevalence of parodontium tissue diseases depends, largely, on intensity of the local affecting causes: dental tartar, dental deposit, carriers and its complications, fillings of not good quality, not qualitative orthopedic constructions.

In persons, connected with various occupational diseases, frequency of parodontium tissue diseases significantly increases. Attention should be paid, in particular, to enterprises, where women constitute the basic manpower. This problem deserves assiduous studying in the context of demographic policy.

Keywords: Chronic catarrhal ginqivitis, parodontosis, generalized periodontitis, carriers.

The purpose of the research. To analyze dental morbidity, the condition of providing dental health service, to elaborate and substantiate organizing scheme of carrying out the measures of prevention of dental diseases in the conductors of coaches on the basis of the studied medical, social, organizational and clinical-statistical indices.

Material and methods. The authors have examined 52 persons, among whom there were 30 conductors of the coaches of Chernivtsi station (basic group) and 22 workers who were not under the influence of harmful factors (group of comparison). For the purpose of studying the prevalence, intensity and dynamics of the progression of parodontium tissue diseases in the persons, connected directly with the occupational harm (basic group), and in the persons, not connected with the production cycle (control group), we have carried out examination of the conductors and employees of Chernivtsi station in order to establish the dependence of parodontium tissue diseases development upon the age and industrial length service, that is the term of harmful action of the industrial factor. To evaluate the condition of the parodontium tissue we used clinical methods and indices: PMA index, depth of parodontal sockets

were determined by probing them from enamel-tooth bone border; sanguifluousness was determined according to PMA index and expressed in per cent.

The results of the research and their discussion. A number of persons with parodontium involvement in both basic and control groups have a tendency to a constant increase. In the control group among the examined persons there were significantly more healthy ones.

When the length service increases the per cent of healthy persons statistically reliably decreased quicker in the basic group in comparison with the control one. At the length service of two years (age group 19–24) the prevalence of diseases of parodontium tissue constitutes already almost 90 %, and it is 18.46 % lower in the control group. This index increases depending on the length of service in both groups, however, the disease progresses significantly quicker in the basic group. Correlation coefficient between the length service and per cent of persons with parodontium diseases constituted +0.97 in the basic group, and 0.88 ($p < 0.05$) in the control group.

Table 1. – Prevalence of diseases of parodontium tissues in the workers of the railway transport

State of paradontium	Basic group (n = 30)		Control group (n = 22)	
	Abs. number	%	Abs. number	%
Intact paradontium	–	–	2	9.09
Chronic catarrhal ginqivitis, ChCG	4	13.34	3	13.63
GP, primary degree	3	10.0	6	27.27
GP I degree	9	30.0	5	22.72
GP II degree	8	26.65	4	18.18
GP III degree	5	16.67	1	4.54
Parodontosis	1	3.34	1	4.54

Prevalence of chronic catarrhal gingivitis (ChCG) in both groups at an increase of the length service and lifetime has a tendency to a decrease and next transition to more severe forms of parodontium diseases. In the age group from 19 to 24 years at the length service of 2 years, ChCG prevalence in the control group is almost 20 % higher than in the basic group, and in the workers with the length service of 10 years ChCG, as separate disease, is diagnosed only in 17 % in the basic group. In the control group ChCG is diagnosed at the length service of 10 years by 2.5 times more often. In the fourth group ChCG, as separate disease, does not occur in the basic group, and in the control group ChCG is diagnosed in 7 % of persons. This regularity becomes understandable after studying GP prevalence.

GP prevalence in the group under study is rather high and at the length service of 2 years and average age of 22 years constitutes already 25.83 % in the basic group exceeding indices more than 4 times in the control group. At the same age the patients with GP II–III degree of severity constitute 2.5 % already in the basic group. In the control group the persons with such severity degree were not revealed at such young age.

The dynamics of GP development in both groups is characterized by a constant increase of their specific gravity in the structure of parodontium tissues diseases. In case of the length service of 7 years the quantity of the patients with GP exceeds a half (56.57 %) in the basic group, that is the growth constitutes 30.6 %. During the same period of time the growth constitutes 14.63 % in the control group, and general quantity of patients is 2.7 times less than in the basic one.

In the third age group (35–44 years) in case of the length service of 10 years the number of patients afflicted with GP constitutes 84.75 % in the basic group with the growth 28.18 %, and quantity of the patients suffering from GP II–III degree not significantly but exceeds already the number of patients with GP primary degree I.

In the control group the number of patients of the same age with GP is also rather high and reaches 60.14 %, but is 24.61 % less than in the basic group. Slight parodontium involvements — GP initial degree I prevail 11, 28 %. The growth of persons afflicted with GP II–III degree constitutes 25.56 % in the basic group, and 15.31 % in the control one, that 1.6 times less.

In the fourth group (45 years and older) the increase of the number of patients afflicted with GP II–III degree was marked to be 29.7 % in the basic group, and 20 in the control one.

A quantity of persons afflicted with GP initial degree I decreased 14.45 % in the basic group and 9.53 % in the control one. In all, there were 100 % of persons with GP involvement in the basic group, and 86.73 % in the control one.

Thus, the prevalence of parodontium tissue diseases is high in the workers of the railway transport and

now constitutes 86.13 % in the basic group at the length service of 2 years, and in the control one — 66.57 %, increasing till 100 % in the basic group in case of the length service of 10 years and in the control one — at the length service of 20 years.

In the structure of diseases of parodontium tissues ChCG, characterized by the reduction with an increase of age and the length service in both groups, prevails at young age. Reduction of ChCG frequency when the length service increases, is reliably quicker among the workers of the basic group in comparison with the workers of the control group.

Development of the dystrophic — inflammatory process was revealed to be different in parodontium. Thus, IP II–III degree was diagnosed in 53.44 % of persons in the basic group following the length service of 7 years under harmful conditions what is almost 2 times more than in the control group, and in case of the length service of 10 years it is 43.21 % and also exceeds indices of the control group by 1.8 times.

So, the influence of industrial harm increases the prevalence of parodontium tissues disease by two times in the workers of the railway transport.

Intensity of pathological processes was studied in parodontium in order to appreciate completely the term of occupational harm influence in the workers involved directly by the production cycle.

Gingival hemorrhage and probing depth are given in percentage with respect to preserved parodontal segments (PS).

Inflammatory process in parodontium tissues was diagnosed according to PMA index. At the age of 19–24 gingivitis was estimated as "medium degree of severity". Later on inflammation growth was marked and "gingivitis severe degree" was diagnosed now in persons older 35 years. The highest growth of PMA index — 17.6 % was marked in the same period.

In the control group an increase of inflammation severity occurs more slowly. PMA index increases between the age groups, on the average, 4.5 %. Severity of inflammation at the length service of two till seven years is estimated as a "slight degree", from seven till ten years and older — as a "medium degree".

The significance of PMA index increases two times in the basic group at increase of the length service from two till ten years, and in the control group — by 1.5 times. In the age group of 45 and older the meaning of index in the main group is two times higher, than in the control one ($p < 0.05$).

The dynamics analysis of CPI index corroborated that when the term of harmful action of industrial factor increases, the state of parodontium significantly becomes worse.

In spite of the fact that stomatorrhagia and the presence of parodontal pockets are one of the constituents of CPI index, we scrutinized them separately and in detail.

The number of paradontal segments with stomatorrhagia increases with age in both groups. The growth of new PS is not the same. The quantity of PS with hemorrhagic diathesis in the basic group is almost 1.7 times higher than in the control group at the length service from two till seven years. During the period of growth of the length service from two to seven years, from seven to ten years, and from ten to twenty years stomatorrhagia increased 22.0; 18.3 and 25.0 % correspondingly in the basic group, but in the control group these indices were: 7.1; 4.6 and 13.7 %, that by 3.0; 3.97; 1.88 times less accordingly.

We judged about the dynamics of the destructive processes in paradontium tissues and, particularly, in the alveolar bone, according to the probing depth of paradontal pockets (PS).

The quantity of PS with the probing depth till 3mm has a tendency to reduction depending upon the length service and age. However, reduction of the quantity occurs significantly quicker in the basic group than in the control one. PS was diagnosed to be 51.7 in the basic group of persons being under 20 years in case of the length service of 2 years.

The dynamics of inflammatory process development in parodontium decreases till 23.8 %, that is to say 27.9 %, depending upon the age and length service. The quantity of persons with PP becomes 14.5 % less during the interval from two till seven years of the length service, later on their quantity almost doesn't change and their decrease is again diagnosed to be 12,3 till twenty years of the length service. In the control group this process passes evenly, decreasing from 85.1 % till 61.2 %, at an average 8 % in every age interval.

Thus, the carried out analysis of the intensity of inflammatory — dystrophic processes enabled to ascertain, that the highest rates of the progress of the destructive processes occur in the basic group at the age of 30–35 years and the length service till 10 years.

In the control group this process passes with lower rates of growth, reaching significant changes at the age of 45–50 years and the length service of 20 and more years.

High prevalence of the diseases of paradontium tissues reaching 100 % in 9–10 years of work at sewing enterprises, high degree of the development of the destructive changes in the parodontium tissue, including alveolar bone at the young age have been revealed.

Conclusions. The prevalence of diseases of the paradontium tissues in the workers of the railway transport is high and constitutes 86.13 % in the basic group at the length service of two years already, increasing to 100 % in the basic group in case of the length service of 10 years. Programmes of the prevention of dental diseases, which might have included dental education of the workers teaching the rules of sound nutrition, the rules of hygienic care of the oral cavity, secondary prophylaxis (planned oral cavity sanation), regular medical check-up are recommended to be renewed.

References:

1. Madore F. Periodontal disease: a modifiable risk factor for cardiovascular disease in ESRD patients/F. Madore//Kidney Int. – 2009. – Vol. 75, № 7. – P. 672–674.
2. Wingren G. Mortality in a Swedish rubber tire manufacturing plant: occupational risks or an "unhealthy worker" effect?/G. Wingren//Am. J. Ind. Med. – 2006. – Vol. 49, № 8. – P. 617–623.
3. Designing an international industrial hygiene database of exposures among workers in the asphalt industry/I. Burstyn, H. Kromhout, P. J. Cruise [et al.]//Ann. Occup. Hyg. – 2000. – Vol. 44. – P. 57–66.
4. Jan J. Polychlorinated biphenyls cause developmental enamel defects in children/J. Jan, V. Vrbic//Caries Res. – 2000. – Vol. 34. – P. 469–473.
5. Dost A. A. Exposure to rubber fume and rubber process dust in the general rubber goods, tyre manufacturing and retread industries/A. A. Dost, D. Redman, G. Cox//Ann. Occup. Hyg. – 2000. – Vol. 44. – P. 329–342.
6. Van Dyke T. E. Risk factors for periodontitis/T. E. Van Dyke, D. Sheilesh//J. Int. Acad. Periodontol. – 2005. – Vol. 7, № 1. – P. 3–7.
7. Swiatkowska B. The most common occupational pathologies in Poland and methods of their prevention/B. Swiatkowska//Med. Pr. – 2010. – Vol. 61, № 6. – P. 661–669.
8. The relationship between occupational exposure to lead and manifestation of cardiovascular complications in persons with arterial hypertension/Poreba R., Gac P., Poreba M., Andrzejak R.//Toxicol. Appl. Pharmacol. – 2010. – Vol. 249, № 1. – P. 41–46.
9. A database of exposures in the rubber manufacturing industry: design and quality control/F. de Vocht, K. Straif, N. Szeszenia-Dabrowska [et al.]//Ann. Hyg. – 2005. – Vol. 49, № 8. – P. 691–701.
10. Exposure to rubber process dust and fume since 1970s in the United Kingdom; influence of origin of measurement data/M. Agostini, F. de Vocht, M. van Tongeren [et al.]//J. Environ. Monit. – 2010. – Vol. 12, № 5. – P. 1170–1178.
11. Exposure to inhalable dust and its cyclohexane soluble fraction since the 1970s in the rubber manufacturing industry in the European Union//Occup. Environ. Med. – 2008. – Vol. 65, № 6. – P. 384–391.
12. Mortality among rubber chemical manufacturing workers/M. M. Prince, E. M. Ward, A. M. Ruder [et al.]//Am. J. Ind. Med. – 2000. – Vol. 37, № 6. – P. 590–598.
13. Chronic occupational exposure to lead and its impact on oral health/K. F. El-Said, A. M. El-Ghamry, N. H. Mahdy, N. A. El-Bestawy//J. Egypt. Public Health Assoc. – 2008. – Vol. 83, № 5–6. – P. 451–466.
14. Cancer mortality and occupational exposure to aromatic amines and inhalable aerosols in rubber tire manufacturing in Poland/F. de Vocht, W. Sobala, U. Wilczynska [et al.]//Cancer Epidemiol. Biomarkers Prev. – 2009. – Vol. 33, № 2. – P. 94–102.
15. Veys C. A. Bladder tumours in rubber workers: a factory study 1946–1995/C. A. Veys//Occup. Med. – 2004. – Vol. 54. – P. 322–329.
16. Terekhov I. A. Hygienic assessment of working conditions and functional resistance in electric power station workers/I. A. Terekhov//Gig. Sanit. – 2007. – № 2. – P. 35–39.

Contents